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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
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10/084,489

02/28/2002

Glenn W. Baxter

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11/01/2004

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EXAMINER

LIN, TINA M

ART UNIT

PAPER NUMBER

2874

DATE MAILED: 11/01/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<p align="center">Office Action Summary</p>	Application No. 10/084,489	Applicant(s) BAXTER ET AL.	
	Examiner Tina M Lin	Art Unit 2874	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 September 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) 18-20, 27-30 is/are withdrawn from consideration.
- 5) ☒ Claim(s) 10 and 11 is/are allowed.
- 6) ☒ Claim(s) 1, 2, 5-9, 12-15, 21, 26 and 31 is/are rejected.
- 7) ☒ Claim(s) 3, 4, 16, 17 and 22-25 is/are objected to.
- 8) ☒ Claim(s) 1-31 are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 01 July 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

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This Office action is responsive to applicant's communication submitted on 20 September 2004.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 6, 7, 8, 9, 21, 26 and 31 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,718,082 to Zhao et al. Zhao et al. discloses a device comprising a polarization alignment means, a polarization manipulation means (16) and an optical separation means (20). Zhao et al. further discloses the polarization alignment means to include a separator (12) and a rotational element (14) for rotating spatially separated orthogonal polarizations states. Zhao et al. further discloses multiple input and output ports (Ports 1, 2, and 3) and a collimator (10 and 11) to focus the input optical signal. But Zhao et al. fails to specifically disclose at least two distinguishable polarization states. However, Zhao et al. does disclose birefringent filter to generate two eigen states. The eigen states then create two separate polarizations, one the same as the input and the other is the orthogonal polarization. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have known there are two distinct polarization states which are then fed to the polarization manipulation means.

Claim 2 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,718,082 to Zhao et al. as applied to claim 1 above. Zhao discloses all discussed above

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but fails to disclose the optical separation means to include an etalon filter. However, Zhao et al. does disclose a birefringent walk-off element (20). The birefringent walk-off element maintains the spatial separation. The purpose of the etalon filter disclosed by applicant is also to maintain the spatial separation of the optical signal. Therefore, since both the etalon filter and birefringent walk-off element both perform the same function, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used either a birefringent walk-off element or an etalon filter to maintain the spatial separation between optical signals.

Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,718,082 to Zhao et al. as applied to claim 1 above. Zhao discloses all discussed above but fails to disclose the polarization manipulation means to comprise of a controlled liquid crystal device and a quarter wave plate. However Zhao et al. does disclose an electrically controllable polarization rotator that could be a Faraday garnet rotator. Faraday rotators are generally known to use liquid crystal type elements. Furthermore, Zhao et al. discloses the rotator impart a controlled rotation to the polarized optical signals. Although the quarter wave plate is not present in Zhao et al.'s device, the result of controlling and rotating the signals are the same. Therefore, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have used either combination of elements in order to achieve the same result.

Claims 12-15 are rejected under 35 U.S.C. 103(a) as being unpatentable over U.S. Patent 6,718,082 to Zhao et al. Zhao et al. discloses a device comprising a polarization alignment means (12 and 14), a first polarization manipulation means (16), a first optical separation means (20), a first reflective element (22), which reflects the optical signal

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back to a second polarization means (16) and a second optical separation means (20).

Additionally, from Figures 5 and 6, it can be observed that the first/second polarization separation element is placed adjacent to the first/second polarization manipulation means.

By definition, according to The American Heritage Dictionary of the English Language, Fourth Edition, adjacent by the broadest definition means close to or lying near.

Therefore, it since the polarization spatial separation element is lying close to the manipulation means, it would have been obvious at the time the invention was made to a person having ordinary skill in the art to have placed the manipulation means adjacent to the spatial separation means.

Allowable Subject Matter

Claims 3, 4, 16, 17, and 22-25 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims. Claims 3, 4, 16, 17, and 22-25, the prior art of record in this application fails to disclose or reasonably suggest an optical separation means to comprise a tunable liquid crystal etalon filter having a tunable separation wavelength and that the etalon filter uses electrode pairs in order to control it.

Claim 10 and 11 are allowable. The prior art or record fails to disclose or reasonably suggest a device with input/output waveguides, a first birefringent crystal, a first polarization rotation element, a first variable polarization manipulation means, and a tunable Fabry Perot etalon liquid crystal filter. The closest prior art of record is U.S. Patent 6,718,082 to Zhao et al. Zhao et al. discloses a device comprising input/output waveguides (Port 1, 2, and 3), a first birefringent crystal (12), a first polarization rotation element (14), and a first variable polarization manipulation means (16). But Zhao et al.

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fails to disclose a tunable Fabry Perot etalon liquid crystal filter adjacent to the first variable polarization manipulation means.

Response to Arguments

Applicant's arguments filed 20 September 2004 have been fully considered but they are not persuasive. In regards to the independent claims 1, 12 and 31, Applicant argues that Zhao fails to disclose a decoupled mode of operation, however the claim language does not reflect the argument. Although Zhao's device has a limited wavelength tuneability, Zhao's device is still able to extract additional channels by altering the birefringent filter, even though may produce a glitch. The claim language does not state that a glitch or loss cannot occur.

In regards to claim 10, Applicant disagrees with the reasons the Examiner set forth as a reason for allowance pertaining to claim 10. The reason claim 10 is allowable is because the placement of all of the elements of claim 10 could not be disclosed or reasonably suggested by the prior art in this application.

THIS ACTION IS MADE FINAL. Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the

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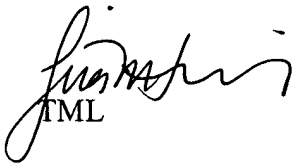
advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tina M Lin whose telephone number is (571) 272-2352.

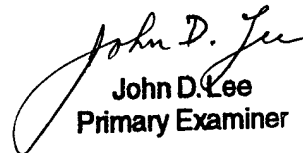
The examiner can normally be reached on Monday-Friday 8:30-5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Rodney Bovernick can be reached on (571) 272-2344. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Handwritten signature of TML.



Handwritten signature of John D. Lee.

John D. Lee
Primary Examiner